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Local Knowledge in the Environment-Development Discourse: From dichotomies to situated knowledges

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Article

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Abstract ■ This article takes a critical look at the various approaches representing local knowledge as a scapegoat for underdevelopment or as a panacea for sustainability, these two representations characterizing the conventional environment–development discourse. The static oppositions of local versus universal knowledge are challenged by establishing more diversified models to analyse the relationships of heterogeneous knowledges. The study emphasizes the complex articulation of knowledge repertoires by drawing on an ethnographic case study among migrant peasants in southeastern Nicaragua. Knowledge production is seen as a process of social negotiation involving multiple actors and complex power relations. The article underlines the issue of situated knowledges as one of the major challenges in developing anthropology as an approach that subjects fixed dichotomies between subject and object, fact and value, and the rational and the practical, to critical reconstruction.
Keywords ■ hybridization ■ local knowledge ■ migrant peasants ■ Nicaragua ■ situated knowledges ■ traditional and modern

Introduction

In the past two decades, local knowledge systems have been the subject of increasing attention not only by anthropologists, but also by environmental researchers, biodiversity prospectors, development experts, businessmen and local people themselves. Local knowledge has been portrayed as a part of a romantic past, as the major obstacle to development, as a non-issue, as a panacea for dealing with the most pressing environmental problems, and as a critical component of a cultural alternative to modernization (Agrawal, 1995; Heyd, 1995).[1]

Conventionally, local knowledge has been represented as something in opposition to modern knowledge. As remarked by Kloppenburg (1991: 527–8), a wide variety of analysts, from phenomenologist philosophers to


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contemporary anthropologists, have tried to illuminate the epistemological difference between local knowledge and scientific knowledge by elaborating a range of binary concepts: *la science du concrète/la science* (Lévi-Strauss, 1962), tacit knowledge/scientific knowledge (Polanyi, 1966), folk knowledge/universal knowledge (Hunn, 1982), indigenous knowledge/Western knowledge (Posey, 1983; Warren et al., 1995), and traditional knowledge/modern knowledge (Huber and Pedersen, 1997).

Characteristic of these dichotomies has been the view of local knowledge as practical, collective, and strongly rooted in place. According to Geertz (1983: 75), local knowledge forms a relatively organised body of thought based on immediacy of experience, while van der Ploeg (1993) speaks of the *art de la localité*, which is intimately linked to spatially specific practices. In this call for the location-specific, ethnoscientists have revealed sophisticated insights into indigenous knowledge systems and world-views. What has been rarely questioned in all this is the representation of local knowledges as monolithic and culturally bounded systems. As remarked by Moore (1996: 2–3), anthropologists have been happy to highlight the 'indigenous point of view' and to see the local people as producers of endogenous knowledge regarding natural resource management, cosmological theories and medical cures; however less attention has been paid to the contested and hybrid character of such knowledges. The concept that local people produce 'shared knowledge', which serves as a 'cultural totem' about 'how we know' (Cohen, 1993: 37), includes an implicit assumption of people living in closed communities and having unique ways of knowing.

Recent trends of post-structuralism and deconstructivism have challenged such ways of constructing the other. Many black and Third World scholars, postcolonial theorists and feminists have pointed out that the absolutist dichotomy 'either/or' that underpins Western philosophical thinking works in a discriminatory manner to structure representations of knowledges in specific contexts (Escobar, 1997; Haraway, 1989, 1996; Mohanty, 1991). It is based on a Cartesian model of the subject who knows and the object who is to be known. According to the post-structuralists, all knowledges are socially constructed, thus the focus of analysis should be on those processes that legitimize certain hierarchies of knowledge and power between local and global (scientific) knowledges.

The purpose in this article is to analyse the role of local knowledges in the current debate on environment and development by drawing on ethnographic research done among peasant colonists in Río San Juan, Nicaragua.[2] The two mainstream approaches – constructing local knowledge as a scapegoat for underdevelopment or as a panacea for sustainability – are critically examined. The study then aims to reconstruct an alternative view of situated knowledges which are simultaneously local and global. Such a perspective re-maps the fixed boundaries between rational and practical, and modern and traditional, that have characterized some of

the main disputes in anthropology in its current crisis of representation (Nash, 1997). It also opens up a new field of ethnographic analysis in which the principal research problem is no longer the local knowledge systems as clearly separated 'there', but the hegemonic discourses that authorize essentialist representations of heterogeneous knowledges.

Context: migrant peasants as disembedded others

In 1996, I became interested in nature-based conflicts in a protected area buffer zone in Río San Juan, southeastern Nicaragua. This humid tropical forest area, located in the municipality of El Castillo, belongs to the buffer zone of the biological reserve of Indio-Maíz, established in 1990. Indio-Maíz has acquired a great international reputation as one of the most outstanding protected areas in Central America. It belongs within the category of strictly protected areas: the only activities permitted in the reserve are scientific investigation and wilderness protection.

The establishment of the reserve has many implications for the livelihood opportunities of the surrounding forest-edge communities. The buffer zone of Indio-Maíz covers 180,000 hectares of land and has some 10,000 inhabitants. It belongs to one of the most intensive agricultural frontiers in the country, with high rates of immigration and deforestation. To secure the support of the local population, the programmes working for the protection of Indio-Maíz are linked to compensatory rural development projects in the buffer zone. In 1994–8, there were 30 projects with a total budget of US$21 million under way in Río San Juan involving agricultural diversification, community forestry, ecotourism, environmental education, local organization and women in development, with financing from various international aid agencies and NGOs (Veracruz, 1995).

Until the 1950s, there were scattered hamlets of smallholders in this buffer zone.[3] These households cleared small patches of forest for crop production, and they also practised small-scale extraction of rubber, *chicle* and precious timber species. During the 1960–70s, a wave of new colonists entered the region. They were principally smallholders from Pacific areas who had lost their lands to cattle estates and cotton plantations. These people without land began to open up the Río San Juan forests to slash-and-burn agriculture.

The Nicaraguan civil war (1979–90) largely depopulated the region. Most of the people left as refugees for Costa Rica or they were evacuated to government-established settlements and cooperatives located in the more controllable regions. Since 1990, a considerable number of the refugees and internally displaced people have returned to their farms 'in the interior'. At the same time, the flow of new colonists entering the region has dramatically increased. There is a high degree of mobility; people come and go, and many of them move ever further into the hinterland. The great

competition over resources promotes a high level of conflicts with varying degrees of violence (Utting, 1993: 147–50).

Most of the current inhabitants are peasant smallholders (*campesinos*), who cultivate basic crops by slash-and-burn agriculture and supplement their livelihood with small-scale forest extraction, logging and trading. Many of them also participate in two-step migration, which involves clearing land for pasture and then selling it to land speculators. A great many of these smallholders encounter a serious crisis of survival in a situation where access to free land has ceased, crop productivity is low and hierarchical forms of commercialization make it difficult for them to compete in national markets. The ongoing structural adjustment policies have only increased the economic hardships of many smallholders. All this has provoked a series of conflicts between the forest-edge communities, conservation agents and development projects under way in the region.

One of the main strands of my study concerned the everyday encounter between development experts and local population in this 'jungle', invaded by rural education campaigns. In such a politicized context, where interventions transcended the strict boundaries of time and space, I noted that the arguments of local knowledge as traditional knowledge, intimately linked to a particular place, transmitted from one generation to another, and going from 'practice to practice' (cf. van Beek, 1993; Berkes, 1993; Huber and Pedersen, 1997), could not explain the situationality of knowledges involved in these struggles of development and power. The categorical opposition between local and global could not illustrate the complex negotiation between diverse knowledges; rather, in order to understand the power of development discourses to tie local people into networks far beyond their control, it was necessary to analyse the local knowledges as highly situated ways of knowing, that have been subjected to multiple forms of domination and hybridization.

When explaining my research objectives, many anthropologists were amazed at my interest in studying the environmental knowledge of these 'forest encroachers', more or less contaminated by modernization. They really wondered whether it was worth studying the 'ethnoecology' of these peasant colonists, who had no autochthonous traditions. All this shows the powerful tendency within conventional anthropology to award high prestige to those who study 'intact cultures', while granting less attention to those interested in more complicated societies and their hybrid ways of knowing. As remarked by Nugent (1993: 40), in this discourse, non-indigenous peasants are still portrayed as incomplete others, too eroded by westernization to have that quality of 'pristine otherness' that would make them suitable for ethnographic research. All this means that in order to understand the complexity of migrant peasants' knowledge systems, we have to pay attention not only to the heterogeneity of their knowledges, but also to the situationality of anthropology and Western science, with their respective trends and marginalizations. In the following, the construction

of local knowledge as a discrete form of knowledge, either inferior or superior to scientific knowledge, is analysed in the light of the environment–development struggles in Río San Juan. The analysis then progresses to an alternative view of these migrant peasants' knowledge systems as knowledges that are being reconfigured within the ongoing struggles over resources and representations.

Local knowledge as non-knowledge

Traditionally, scientists and development experts have simply not wanted to see local forms of knowledge as having anything important to say. Scientific knowledge has been defined as a paradigm of knowledge, and the only epistemologically adequate one. This has resulted in a view of local knowledge as non-knowledge, that is based on irrationality and ignorance (Murdoch and Clark, 1994). Among the development experts working in Río San Juan, local knowledge was commonly seen as a constraint on progress and local settlers as confined by their traditional modes of thought. In one of the workshops held for training of the local people, a leading rural adviser[4] presented the following list of *-isms* which, according to him, obstructed the process of development in these jungle communities:

1. lack of will to change one's attitudes and customs (conformism)
2. lack of initiative to resolve one's problems (fatalism)
3. lack of responsibility; supposition that the government and development institutions should always help (parasitism)
4. magic traditions and beliefs (irrationalism)
5. lack of education (analphabetism)

Through such a representation, the local forest-edge communities were constructed as spaces of backwardness and their settlers as maladaptive parasites, imprisoned by their superstitions. They were rendered primitive and pre-scientific, and their capacity for progress was thought to depend on the intellectual skills of the rural advisers to unveil their ignorance and instruct them from the age of magic to the age of logic. The development agents were characterized as experts bringing civilization to barbarians, science to the superstitious, and well-being to those suffering from various lacks: lack of managerial skills, lack of sustainability, lack of environmental ethics and lack of long-term plans. To emphasize the difference between expert knowledge and local ways of knowing, the developers utilized a discourse that featured sharp contrasts: rational/magical, universal/particular, theoretical/practical and modern/traditional.

These dichotomies were powerful mind organizers, privileging one form of knowledge over another. Local knowledge was defined as knowledge of an out-of-the-way other, contrasted with progressive representatives of the expert world. This polarization served to elaborate the omniscience

of experts as opposed to the ignorance of the rural poor, the enlightenment of 'us' from the obscurity of 'them', and the rationality of science from the irrationality of local knowledge. The criteria of what constituted knowledge and who was designated as qualified to know, were articulated by developers who spoke for the others who had been rendered voiceless.[5]

Such exclusion became clear in the conventional encounter between conservation authorities and local peasants in Río San Juan. Many conservation agents constructed local environmental knowledge in such a way as to suggest that, although the local people live in a rich tropical habitat, they are unaware of its ecological diversity and ignorant of how to take care of it. They were deemed to be colonists who know how to tame the jungle with the *machete* but who do not know how to conserve tropical biodiversity; only the conservation agents were considered to have the capacity to decide how this tropical landscape should be used. This argument of knowledge difference was then utilized to reinforce the conservation authorities' right to control the local resource users, who were argued to be in need of effective governance and guidance in order to achieve a 'modern' environmental consciousness.

Local settlers responded to these accusations by pointing out that the appeals for local people to change their attitudes toward nature have little relevance to the extent that the power to make a difference in local resource management is so unequally distributed. They also challenged the relevance of all this care for biodiversity by critically asking whom it was supposed to benefit. All this demonstrates how developers imposed particular representations upon local knowledges, while at the same time ignoring all the alternative conceptualizations. The everyday system of these slash-and-burn cultivators of classifying plants and soils as hot or cold was likewise judged as parochial.[6] Their practice of burning the land cleared from the forest, considered fresh (cold), until maize as a hot crop could be sown on it, was condemned simply by claiming that their traditional belief in 'hot' and 'cold' was nonsense. In the transfer of knowledge 'from experts to clients', the role of local knowledges as symbols of social identity and as signs by which the local people interpret their relationships with past, present and future, was ignored, while the interaction between developers and those-to-be-developed was constituted solely by the experts' categories.

There were also those development agents who utilized local knowledge as a strategy to achieve the desired change in these buffer zone communities. In various development projects, the rural advisers spoke of the need to respect local traditions, such as the conception of the moon controlling the vitality of the plants, the belief in the evil eye causing illnesses, and the classification of soil fertility by observing the colour of the soil. They carefully argued that there is no scientific proof of the rationality of these concepts, but in order to gain approval among the targeted local groups, one had to show respect for their beliefs. This meant paying lip service to local knowledge in order to achieve success in one's development programme.

Characteristic of this discourse was a powerful theme of rationality which judged local knowledges in terms of their appropriateness. The main idea was the involvement of local people and the incorporation of their knowledges into global strategies of sustainable development; the contribution of anthropology to this task was seen as one of providing ethnographic 'hints' to enable developers to distinguish valuable information from irrelevant drivel in these alien knowledge systems.[7] All this meant that local knowledge was legitimized only if it conformed to experts' principles of sustainability, having no right as knowledge per se.[8]

This conception emerged clearly in the discourse of biodiversity, in which local knowledges were often seen as under-used mines of information to be shared for the benefit of humanity at large. It was the bioprospectors who were the most eager speakers on behalf of local environmental knowledge, seen as a culturally and socially free 'human capital' to be harnessed in the service of biobusiness. Many of them considered the 'unimproved' genetic material – wild species and traditional varieties of crops grown by local people – as an 'open-access resource', and the knowledge of its potential use as the 'common heritage of all humans'. At the same time, they promoted maximum protection for modern medicines and crop varieties as a private property, and monetary compensation for scientists and corporations who manipulate folk varieties in their laboratories.[9]

In this situation, the local people themselves critically remarked that 'what you call bioprospecting, we call biopiracy'; in this way they called attention to the fact that the view of local knowledges as gems of information follows a familiar pattern of outsiders extracting raw materials. This new, intellectual imperialism misconstrues local knowledges as collective and 'out of history', and thus available for appropriation into scientific and developmentalist procedures. All this was cleverly pointed out by a local healer, don Sefarino, in saying that 'Every year scientists come here to take sacks of samples of our medicinal plants, and pads of notes on our healing practices, and after having grabbed all this information, they disappear and never give us any compensation.'

Such a view also assumed that the relevance of local knowledges could be verified only when subordinated to the conceptual apparatus of science. The capacity of local people to innovate, systematize and transfer knowledge was seen as limited, while scientific knowledge was considered rigorous and cumulative. There was little recognition of the fact that in practice science is 'achieved' in much the same way as other forms of knowledge – through social construction and negotiation – despite the tendency of many researchers to hide the acquisition of resources behind the presentation of scientific facts as reality 'reveals' itself. The staunch faith in objective science among the developers concealed the fact that what we call modern science is itself a historical product of continuous struggle not only to define science in a particular way, but also to exclude other ways of producing knowledge from that definition.[10]

Local knowledge as a holistic way of knowing

Today, there is an increasing number of environmentalists and alternative movement activists criticizing the hegemony of science and emphasizing the necessity of creating space for competing modes of knowledge. According to many of them, it is time to replace the reductionist framework of science with a methodology that draws its guidelines from non-Western traditions, based on holistic ways of knowing and ecologically evolved learning to live in equilibrium with nature.

This perception was fairly common among the environmentalists and alternative developmentalists working in Río San Juan. The matter was conceptualized as follows by one of the alternativists interested in rural empowerment in the buffer zone communities:

> Western science has for centuries oppressed rural people and their traditional knowledge. Instead of considering us as experts, we should admit that we are apprentices and have enormously to learn from the local people. They know their environment intimately and they have deep knowledge of the local ecosystems. You as anthropologist should help us in preserving this practical wisdom, totally different from scientific abstractions.

According to alternative developmentalists, local settlers were 'minimal disturbers of nature', and 'admirable scientists of the concrete' (Malkki, 1992: 29), genuinely unfolding the hidden innards of the local habitats. Their knowledges were portrayed as utilitarian, responding to precise everyday problems, in contrast to scientists' theoretical deliberations.

All this meant the resurgence of a new range of polarities, in which human knowledge was once again characterized as being composed of two opposing archetypes: Western science was constructed as reductionist and theoretical while non-Western knowledge was considered holistic and practical. These two knowledge systems were seen as highly segmented and occupying different cultural spaces, with little exchange of information between them. All this led to essentialist visions of local knowledges and romantic images of 'noble savages'. The non-industrial people were seen as paragons of ecological virtue, with scant attention paid to the existing diversity of environments, cultures and histories, and to the larger questions of knowledge and power. The image of rural communities possessing primordial environmental wisdom formed the basis of these radical environmentalists' critique that modernity per se was responsible for environmental destruction.[11]

All this was closely involved within global environmental discourses in which local knowledge is acquiring a strategic value in the environmentalists' humanist stance of defending disempowered people and not just protecting flora and fauna. This concerned especially the environmental knowledge of indigenous people. In recent years, the rainforest Indians and their environmental skills have become key symbols in transnational

politics. These alliances between environmentalists and Indians are often founded on the assertion that native peoples' environmental knowledges are consistent with Western conservationist principles: The Indians are represented as 'guardians of forest', and as 'people dwelling in nature according to nature'. Such images ignore the complexity of indigenous knowledges and they also contradict the priorities of many native peoples who seek control over their resources by these alliances, while the environmentalists need Indians and their traditional knowledges in order to provide a 'human face' for their global strategies of sustainability. There is a risk that the Indians are approved as useful partners in these alliances only to the extent that they conform to Western images as 'authentic others' who demonstrate stewardship qualities toward nature (Conklin and Graham, 1995).

The peasant colonists have the bad luck of being relegated as evil others even by this discourse. When comparing the images of indigenous versus non-indigenous rainforest dwellers in the global environmental discourse, in the representations of the Indians there are precious tropical forests, rivers and mountains, huge trees with orchids and toucans, and delighted children with canoes and crossbows in the enchanted wilderness. This paradise, associated with ancient roots, time-tested lifeways and primordial mysticism, is in danger of being lost because of the terrible encroachment of non-Indian colonists, portrayed as unruly forest ravagers. There are representations of colonist families in their rustic huts and muddy *patios*, with pigs wandering here and there, men listening to the transistor radio and women caring for lean children with ragged clothes. All these images are based on a sharp dichotomy according to which tropical forest dwellers either are ecologically noble or they are not. The Indians are essentialized as peoples of simplicity, purity and environmental wisdom, while the non-Indian colonists are portrayed as rootless, corrupted and lacking environmental knowledge.[12]

Such a perception was implicitly constructed by one of the project leaders working for an international environmental movement in Nicaragua when explaining to me that:

> . . . we prefer to work with indigenous people rather than with colonists, because the Indians have rich, accumulated knowledge of the rainforest and they still preserve their traditional practices of nature conservation. This offers us much more potentiality for global conservation, because they are more aware of our objectives.

According to him, the peasant colonists possess the 'mentality of pioneering' and the 'culture of mining', with no ethics of conservation. They were portrayed as 'malignant children of Malinche', haphazard meldings of Western and non-Western, and as 'vagabonds roving here and there'. When the Indians were associated with tropical flora and fauna as part of the overall spectacle of natural wilderness, the colonists, portrayed as 'men

combating the forest', belonged to culture, spoiled by the evils of modernization.

These images dismissed local forest dwellers as social actors and the historical construction of their knowledges. There was no notion that both colonists and indigenes are 'people of the forest', although they have shaped the tropical landscape in different ways. Through categorical cultural representations, the power structures that mediate the struggle between competing knowledges and environmental ideologies were alienated. The forest-clearing activities of non-Indian colonists were attributed to their primordial 'land hunger', or to their cultural 'forest phobia', with no references to the wider contextual factors – such as agrarian policies, land tenure regimes and market forces – which have reinforced a land use pattern of forest conversion in most tropical forest areas.

Characteristic among the advocates of alternative knowledges was also an idealist assumption that it is possible to get rid of all forms of domination by simply replacing scientific hierarchies with alternative bottom-up approaches. Many of them insisted that their methodologies of 'thinking from below' successfully achieve an in-depth appreciation of the local life-worlds, and finally portray events 'as the natives find them'. In their perceptions, power came only from the top down, rather than operating in diverse social spaces. There was a tendency to portray local people as homogeneous, assume communication as unproblematic and overstate the practicability of everything that is 'local'. The opposition between us and them and here and there was taken as given; the main question was only how to establish mutual communication between the conceptually separated knowledge systems. All this meant little problematization of people's positions in the production of knowledge differences and little recognition of the political context in which alternative knowledges were being promoted.

Both of the above presented perspectives thus rely on the categorical alienation of local knowledge from universal knowledge. In scientific reductionism, local knowledge is seen as a resource of information to be interpreted by scientists; in the alternative 'noble savage' vision it is considered as a panacea for emancipation, without any notion that there is a danger of appropriating the vision of the less powerful while claiming to see from their positions (Haraway, 1996). In both cases, local knowledge is portrayed as essentially non-rational – either because of its pre-scientific and backward character, or because of its primordial wisdom. These two apparently opposed approaches then have a common structure of sustaining the discourse of otherness, in which local knowledge serves as a mirror image of scientific knowledge and local people are left without agency and reason. Both cases demonstrate that the representations are inevitably political, consequently a critical analysis of local knowledges requires more attention to be paid to the relationship of diverse knowledges and to those power structures affecting the dominance of particular knowledges.

Situated knowledges

Processes of contestation and reinterpretation

When trying to analyse the relationship of expert knowledges and local knowledges in the forest-edge communities of Río San Juan, any conception of local insights as objectively knowable phenomena occupying discrete spaces became implausible. In these communities of colonization, where contradictory discourses overlapped and discrepant meanings criss-crossed, all knowledges were made up of diverse elements and combined within a world of multiple actors. Any attempt to draw sharp boundaries around what counted and what did not count as 'authentic' local knowledge proved to be fruitless; rather, there was a need to start to grapple with heterogeneous and hybrid knowledges.[13]

It is in these 'places of unpredictability' that we must begin to reformulate our anthropological paradigms. The characterizations of local knowledges as internally uncontested systems arising from a communal commitment to consensus (Browder, 1995; Heyd, 1995) simply did not hold true in these communities composed of diverse social actors – peasant smallholders, land speculators, squatters, forest extractors, ambulatory traders, timber dealers and healers – with their politically fragmented and socially differentiated knowledges. These knowledges carried with them responsibilities and rights that applied differentially according to the social position, as well as complex hierarchies for determining the power to narrate history, to define tradition, and to make claims to knowledge and authority. Although most of the inhabitants were 'rural cultivators', they also worked as itinerant peons, forest extractors and loggers, moving wherever economic opportunities seemed available to them. The occupational and sectoral boundaries were thus fluid and blurred, resulting in complicated hierarchies. The communities were politically fragmented into Sandinistas versus Liberals (or ex-Sandinistas versus ex-Contras) and religiously into Catholics versus Protestants. When conversing with local people it was thus necessary to carefully consider which metaphors to use in each situation: for many Sandinistas the term 'cooperative' brought to mind the epoch when they were given all the necessities free of charge, while most of the Liberals associated the term with directed development with no possibilities for independent action.

These colonist settlers' knowledges were, therefore, caught up in a rivalry of tendencies, fractured by class, age, religious, political and gender differences. Strategic differences in the environmental knowledge of men and women could be noted, depending upon the type of activity, resource and location. The knowledge of timber products was considered a speciality of men, because of the perception of the forest as a dangerous place that remains outside the range of women's activities. The knowledge of cattle husbandry was also assigned to men because they, as heads of the household, owned the cattle; women's knowledge of cattle husbandry was

confined to milking, the task which was stereotyped as an ideal activity for women because of their 'natural handiness'. Housework, including poultry raising, was considered a women's duty, while the women's special prestige was associated with their gendered knowledge of domestic healing. From early childhood, girls were socialized to make *tortillas*, wash clothes, sweep the ground floor, tend chickens and fetch water from the river, while boys were taught to 'flutter' the *machete*, ride a mule, carry sacks and defend themselves physically. All this demonstrates the uneven distribution of local knowledge and how it links to people's power relations and gendered access to resources.

Even in the knowledge repertoire among the local healers, significant variation could be remarked as a result of such factors as age, gender, kinship, religion and personal experience. Different healers used different methods and there was great competition between healers, midwives and 'magicians' on the 'true' interpretation of illnesses. Each specialist guarded his/her own knowledge as a secret property, which would lose its power or be transformed into harmful sorcery if it became known to other healing specialists. Local knowledge existed in diverse versions which were not separable from the people's competitive roles and historically situated practices.

The knowledges of these migrant peasants were also closely linked to their complex social history, composed of dynamic articulations between various knowledge systems. Their agricultural knowledge included practices of traditional slash-and-burn agriculture mixed with modern agribusiness, pre-Columbian metaphors of the earth as a symbol of life mixed with postcolonial resistance to Western images of local people's affinity with nature, traditional concepts of soils as hot and cold, mixed with modern insights of soil mineralogy. Don Sefarino had constructed his healing practices from heterogeneous matrices: from his uncle who was an excellent healer, from the Catholic monks in Chontales, from the indigenous herbalists in the Atlantic Coast, when assisting in a rural health project financed by USAID, in the training courses organized by the Ministry of Health, when serving as a guide for foreign ethnopharmacologists and bioscientists, and when practising as a healer in the local communities. His medicinal knowledge consisted of a complex repertoire of native herbs and vines, cultivated medicinal plants and 'modern' medicine, with their discrepant epistemologies.

To point out this character of knowledge production as a process, local people themselves used the term *conocer* (to be acquainted with), instead of *saber* (knowing). When asked about their knowledge of non-timber forest products or cures for snakebite, the typical answer was: 'I'm acquainted with some of that, but not so much.' People reworked their knowledges in response to changing social and political contexts that were products of local and non-local processes. Concerning this, their knowledges could not be defined as purely utilitarian and as 'conforming more closely to description

than to the powerful deductive explanations provided by science' (Clark and Murdoch, 1997: 43). These peasant colonists also innovated insights and identified goals; they analysed their actions, and created epistemologies. Their environmental knowledge in regard to the forest could not be seen as simple knowledge about useful forest products. It also included symbolic constructions of the forest as an uncultured space, something intact and wild that remained beyond human control. It was a source of unpredictable rains, thunder and storms, as well as a place of malevolent supernatural beings attacking lonely travellers. Behind the local conceptions of hot and cold, there was a whole epistemology of various oppositional forces that should be in proper relationship with each other to make the cosmic order possible. The systems of utilization and the systems of signification were, thus, intrinsically interwoven in these colonists' knowledge systems.

People also engaged in critical thinking and so attempted to change the conditions of their living in the political economy, where the complicated relations of knowledge and power produced hierarchical patterns of resource control. They criticized the power of developers to determine what pattern of resource utilization is good for them at the same time that they challenged the authority of *caciques*, as traditional powerholders, to control all the local resources. They questioned the principles of traditional medicine by deliberating whether getting wet in the afternoon when your body is 'hot' has anything to do with falling ill with rheumatism, at the same time as they deconstructed the omniscience of modern medicine by remarking that 'the doctors in the cities have no consciousness of hot and cold illnesses'. They declared that they do not believe in evil eye, although afterwards they told you many stories of persons who had lost their luck due to the sorcery of envious neighbours. They criticized local healers as 'impostors who live at the expense of the credulous', even while attending them regularly. By this kind of bargaining and critical deliberation people tried to rework their knowledges to fit ever-changing situations.[14]

In this light, the entire dichotomization of traditional knowledge as inherently opposed to modern (or postmodern) knowledge seemed arbitrary. Only by examining the continuity in change, traditionality in modernity, and situationality in hybridity could a more profound significance involved in the reconstruction of local knowledge be revealed. There was no monolithic modernity expanding, inexorably, into this jungle; rather, local and global were intrinsically mingled together, and ambivalent meanings created complicated local life-worlds.

Struggles over knowledge and representation

From this perspective of situated knowledges, it became evident that also in the game between 'experts' and 'clients', the local settlers were actors constructing the other. They contested the symbolic subjugation of their knowledges by critically challenging the developers' expertise as 'some loose tips' (instructions, pieces of advice), changing chaotically according

to the vicissitudes of development policies. They also questioned the progressive character of science by pointing out that in the cycle of different booms the developers' 'big promises' are never fulfilled. In regard to the current boom of 'natural products' and 'local environmental wisdom' they even felt that the developers were making them ridiculous. When the physicians only a decade ago condemned their use of wild plants as medicines, scientists now come to ask them to serve as guides to the reserve of Indio-Maíz in search for natural remedies. A local extractor, Don Ernesto, could not but laugh at the whole circus; he told amusingly how 'some *cheles*[15] are going to implement a project of rattan as an alternative non-timber forest product in the community of Buena Vista, although there is almost no rattan left in this region. And all this just because the experts have now realized that the tropical forests are more than timber.' By this story, Don Ernesto wanted to call attention to the ignorance of the developers who had no notion of the wider social and political context in which the 'utility' of local resources and local knowledges is continuously defined.

In this game of reconstruction, local people no longer identified themselves as authentic others, but as people who have for ages been mediated by globalization. The inevitable influence of modernization was recognized, as well as the existence of the 'new world', where their knowledges are characterized by alterity and hybridity. They were well aware that the intransigent dependency upon 'traditional' knowledge is a less efficient strategy to cope with globalization than a critical opening toward the present, including a selective engagement with current discourses of development. They clearly recognized that in a situation where bioprospectors define the value of their medicinal plants and rural advisers determine the reasonableness of their agricultural knowledge, any change in the current violence against the subject of knowledges requires struggle at different levels, from local to global.

In this regard, local settlers proved to be very clever in using the current phraseology of sustainability. When conversing with development experts, they carefully employed the clichés of environmental consciousness, local participation, and sound resource utilization. This confusing imitation of all the rhetoric of sustainability was a key to the reconstitution and redeployment of their knowledges. One of my key informants, Don Rufino, was well aware of the images salient in international environmental and development circles. He emphasized the value of the biological reserve of Indio-Maíz as the world's largest and last 'pharmacy', urging that it has to be studied by scientists before it vanishes. However, when talking with his neighbours, he merely wondered why the government did not give this 'reserve of idle land' to poor peasants who do not have a place where they can survive. He proudly told me about the native multi-purpose species, providing the necessary details to satisfy a foreign anthropologist interested in ethnoecology. He showed me the tree called *hombre grande* as an indispensable remedy against malaria, and the vine called *uña de gato* as the most

promising cure against cancer, AIDS, and other 'modern' illnesses. When he himself felt any symptoms of malaria, however, he went to the nearest health centre to ask for malaria pills.

All this shows that these colonists were well aware of what anthropologists and environmentalists wanted them to do: go back to nature and live in thatched huts instead of concrete houses, preserve their traditional healing practices instead of using modern medicine, and conserve their forests for future generations instead of clearing them for agriculture. They were well acquainted with the expectations placed upon them by those who occupied high positions in regional, national and international development politics. In this situation, they reshaped their knowledges in order to fit better with the image of 'sound resource users', seen as a prerequisite for receiving benefits from the donors. At the same time, they eagerly stressed the systematic character of their knowledges, while disguising any aspect that could be associated with magic or primitivism. This was because they did not want to be confused with the 'savage Indians', whose knowledges they perceived as threatening witchcraft. When talking about their conception of the moon regulating the vitality of life, they carefully remarked that 'many scientists have been interested in the rationality of our practice of rooting up tubers in the waning moon'. They were strategically negotiating which aspects to emphasize or conceal in their knowledge repertoires, at the same time as they were reinterpreting the multiple meanings of sustainability.

All this challenges the alternative developmentalists' view that if both sides in the development process improve their communication, a major obstacle for development will be removed. Such a vision ignored the many reasons people may have for not wishing to communicate (Hobart, 1993: 11–12). In our daily conversations, people always insisted that they had no idea of the development projects going on in their communities, even those persons who regularly attended the projects' village meetings. By this rejection people wanted to imply that the developers are not trying to resolve their problems. Their reluctance to participate was not simply an indication of their passivity; it was also a strategic form of resistance against those planning for their future.

People also contested the role of clients thrust upon them by developers. When conversing with rural advisers they appreciated the improvements of their production systems by developers' expertise. In their heart of hearts, however, they felt a deep resentment towards any discourse of development. They themselves called this *hacer la guatuza* – 'leaving a stranger in the lurch' – or as explained by Doña Ernestina: 'if you are a *chela* and you come here, people swear to you that they will participate and that everything is possible, and then they knife you in the back'. When a project implementing a campaign of agricultural diversification supplied pineapples to local settlers to be planted in their home gardens, people took dozens of pineapples, but instead of planting them, they either ate them or

sold them in nearby communities. This was their way of criticizing the developers' ignorance of the vulnerability of local economy in relation to far-reaching global markets. All this demonstrates how people understand and misunderstand in strategic ways and how their knowledges are redefined in compliance, negotiation and resistance within the wider discourses of development and power.

The critical task of anthropology in this work of reconstruction is to search for fresh forms of knowledge and representation that identify difference without domination and diversity without totalization. Theoretically, this requires a new epistemological basis that recognizes the fluidity of boundaries and the partiality of entities, while emphasizing the multiplicity of voices and the diversity of visions. This struggle for a vision of contextualized knowledges is not just intellectual or 'academic', it also has enormous consequences for people's lives, for knowledge making and for political action, as can be noted when simply reflecting on the power that science, such as engineering, biotechnology and medicine, has today over people's bodies and life-worlds (Fujimura, 1997).

Conclusion

This study took a critical look at the conventional approaches categorizing local knowledge as opposed to universal knowledge. The epistemology of scientific rationalism, perceiving local knowledge as scapegoat for backwardness or as a raw material for scientists, was challenged. The alternative 'noble savage' approach, in which local knowledge is portrayed as holistic wisdom, was likewise deconstructed. The study emphasized the necessity of analysing local knowledges as heterogeneous ways of knowing that emerge out of a multidimensional reality in which diverse cultural, environmental, economic and socio-political factors intersect. All knowledges are derived from the interaction of multiple social actors, that are differentially empowered and move in a terrain characterized by contradictory, competitive and complementary relations.

All this makes it impossible to work with sharp boundaries between people's science and scientists' science. Local knowledge repertoires are a result of knowledge encounters in which local and global, and traditional and modern are intricately intermingled. A critical question is rather the relative status of the different components in these knowledge encounters. Would we expect to see the gradual marginalization of alternative knowledges, or can there be a symmetrical coexistence between these diverse forms of knowledge?

According to Turnbull (1991: 572), what is needed is 'to find ways to give a voice to local knowledges without smothering them in totalizing theories'. This requires spanning the all-encompassing divides and reorienting ourselves toward situated knowledges. Such a perspective offers

interesting angles from which to analyse the existing heterogeneity of knowledges and the multiple ways by which the local knowledge systems become linked to global representations of knowledge and power. In today's highly interconnected world, local people find themselves tied into social, scientific and technical networks which extend far beyond their locality and, consequently, there is an increasing need to recognize the ongoing hybridization of their knowledges.

A strategy to empower local knowledges requires an understanding not only of the hegemonic discourses authorizing essentialist representations of knowledges, but also of the shifting and contested nature of local knowledges, which are themselves derived from discrepant epistemologies and practices. For us as anthropologists, this means we are called upon to pay greater heed to the interpretations of the people we study. It also demands that we welcome these alternative ways of conceptualization which now have no voice or which simply are not heard in contemporary scientific and developmentalist discourses. This at best offers us a much better understanding of marginalized people's struggles to reconfigure their knowledges and to reconstruct their life with meaning in today's networks of knowledge and power.

Notes

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1 The terms 'local knowledge', 'indigenous knowledge', 'traditional knowledge' and 'ethnoscience' are used as synonyms here, although each has its drawbacks. 'Ethnoscience' has a competing meaning in linguistic anthropology, where it is limited to semantic analysis of folk taxonomies. 'Local knowledge' has a connotation that local people are only observing their immediate surroundings and that their knowledge has no wider application. 'Traditional knowledge' connotes a homogeneous system of thought, thus obscuring the fact that people everywhere constantly rework their knowledges. 'Indigenous knowledge' conceals the fact that all people, irrespective of whether they are indigenous to a given area, have developed complicated understandings of the world (De Walt, 1994; Sillitoe, 1998). A thorough semantic analysis of these terms is beyond the scope of this article.

2 The anthropological field research was carried out in Río San Juan in 1996–8. The primary information consists of tape-recorded interviews, informal meetings, daily conversations and participant observations involving local people, as well as numerous state agents, development experts, and environmental and social movement activists in 45 development institutions and

NGOs. Except where explicitly stated, the presented information is based on my field material.

3 Two-thirds of the land in the department of Río San Juan belonged to the dictator Somoza and absentee land speculators. Most of these 'unoccupied' lands were nationalized during the Sandinista government (Rabella, 1995: 101–5).

4 Interestingly, only a day before, this rural adviser eagerly told me how he had participated in various courses of local empowerment.

5 For those criticizing the categorical distinction of us as knowers and them as to be known see Fabian (1990), Hobart (1996), Latour (1993) and Law and Whittaker (1988). For studies analysing the subjugation of local knowledges by a hegemonic discourse of expert knowledge see Escobar (1997), Hobart (1993) and Pigg (1996).

6 These metaphors of 'hot' and 'cold' form a network of meanings in everyday knowledge throughout Central America. They refer to plants, soils, bodily conditions, foods, illnesses and medicines. In this knowledge system, hot and cold are not transitory states of thermal quantities, but intrinsic qualities of each object; for example water considered as a cold element remains cold even when boiling. This classification system is a modified form of an ancient Greek humour pathology transmitted through Spain to the New World, where it combined with Mesoamerican traditions (Wilken, 1990). It is a dynamic system of classification in which people selectively mix diverse meanings together.

7 For recent studies, emphasizing the role of anthropology as one of promoting the potential contribution of indigenous knowledges to sustainable development see Forsyth (1996), Purcell (1998), Sillitoe (1998) and Warren et al. (1995).

8 This applies also to the famous *Agenda 21*. This global environmental strategy recognizes that indigenous peoples 'have developed over many generations a holistic traditional scientific knowledge of their lands, natural resources and environment', and then recommends the 'recognition of their values, traditional knowledge and resource management practices with a view to promoting environmentally sound and sustainable development' (UNCED, 1993: 227–8). According to the criticism expressed by many Third World experts, despite all the rhetoric on 'local knowledge', this environmental strategy appreciates the scientific knowledge of the West, and secures the political interests of the North, giving no space for alternative ways of making politics and representing knowledges. For more on this criticism, see Benton (1994) and Guha and Martínez-Allier (1997).

9 For detailed analyses of local knowledge and intellectual property rights concerning bioprospecting see Brush (1993), Brush and Stabinsky (1996) and Cleveland and Murray (1997).

10 For ethnographic laboratory studies that demonstrate how science attempts to decontextualize itself in order to make itself neutral see Knorr-Cetina (1995), Latour (1993), Shapin (1995) and Watson-Verran and Turnbull (1995). Such social studies of science have been criticized by Gross and Levitt (1994) and Sokal (1996), according to whom any argument about science as social practice is absurd and antiscientific. According to them, science as objective and systematic offers the best available methods for producing credible claims. For more on this epistemological controversy see Fujimura (1998) and Ross (1996).

11 The 'primitive environmental wisdom' continues to be an issue which provokes heated discussion in anthropology and the social sciences. For those proposing

the superiority of non-Western knowledges because they represent a close affinity with nature see Hoffman (1997), Merchant (1992), Shiva (1989) and Warren (1990). For those criticizing the essentialist representation of non-Western peoples as 'nature conservationists' see Agrawal (1995), Bebbington (1993), Buege (1996), Colchester (1997), Guha and Martínez-Allier (1997), Headland (1997) and Milton (1996: 106–41).

12 For inspiring studies on representations of indigenous and non-indigenous people in the global imageries see Conklin and Graham (1995), Lutz and Collins (1993), Nugent (1993, 1997) and Ramos (1991).

13 For studies dismantling the dichotomies of local and global see Agrawal (1995), Descola and Pálsson (1996), Haraway (1996), Moore (1996), Murdoch and Clark (1994) and Nader (1996). For studies on reconstruction and hybridization see Clark and Murdoch (1997), Gupta and Ferguson (1992), Jackson (1995) and Mitchell (1997).

14 In this respect, see the inspiring study by Pigg (1996) on the shifting character of 'traditional' belief systems in Nepal.

15 A pejorative appellation, referring to a person who is light-complexioned and foreign (North American or European).

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